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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,609	05/31/2001	Bret Ronald Olszewski	AUS920000844US1	1789

7590 07/30/2004

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EXAMINER	
VO, LILIAN	

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/870,609	OLSZEWSKI ET AL.	
	Examiner	Art Unit	
	Lilian Vo	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 23 are pending.

Claim Objections

2. **Claim 23** is objected to because of the following informalities. Claim 23 recites the limitations "first determination means" in page 12, lines 3 and 6, respectively. The examiner believes there is a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5 – 6 and 8 – 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. **Claims 5, 8 and 16** recite the limitation "the physical processor" in page 16, lines 5 and 2, respectively, and page 18, line 5. This is considered vague and unclear since that does not specify whether it is referring to the 1st or the 2nd physical processor. For the purpose of the examination, the examiner will assume it is referring to the 1st physical processor.

6. **Claims 12 and 23** recite the limitation "the active number" in pages 17, line 1, and page 19, line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 12, 13 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicants' admitted prior art.

9. Regarding **claim 1**, Applicants' admitted prior art discloses a method for managing resource of a physical processor, comprising:

determining whether a first logical processor on the first physical processor is idle (specification page 2, lines 13 – 19, page 3, lines 7 – 13);

determining whether a second logical processor on the first physical processor is busy if the first logical processor is idle (specification page 2, lines 13 – 19, page 3, lines 7 – 13: when the processor is idle, the processor checks for threads to acquire from another logical processor's run queue); and

relinquishing resources of the first physical processor to the second logical processor if the second logical processor is busy (specification page 2, lines 6 – 8: when a

thread is dispatched to a logical processor, it runs as if it is the only thread running on the physical processor).

10. Regarding **claim 2**, Applicants' admitted prior art discloses the method of claim 1, wherein the step of determining whether the first logical processor is idle comprises:

determining whether the first logical processor is running a current job (specification page 3, lines 11 – 13): and

determining whether a first run queue corresponding to the first logical processor is empty if the first logical processor is not running a current job, wherein the first logical processor is idle if the first run queue is empty (specification page 3, lines 11 – 13).

11. **Claims 12 – 13 and 23** are rejected on the same ground as stated above.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 3 - 6 and 14 - 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art.

14. Regarding **claims 3 and 4**, Applicants' admitted prior art discloses the concept of when a logical processor becomes idle and there is no threads waiting in the run queue, the processor checks for threads to acquire from another processor's run queue (specification page 3, lines 11 – 15). It is obvious to one of an ordinary skill in the art, at the time the invention was made, to recognize that if there is any thread waiting in the run queue (not empty), the processor would process it first before consider stealing or acquiring threads from the other processor. As a result, the run queue is not empty if there is thread waiting and by processing the thread, the processor is busy, not idle.

15. Regarding **claims 5 and 6**, Applicants' admitted prior art discloses the concept of when a logical processor becomes idle and there is no threads waiting in the run queue, the processor checks for threads to acquire from another processor's run queue and that moving a thread between physical processors is expensive (specification page 3, lines 11 – 18). It is obvious to one of an ordinary skill in the art, at the time the invention was made, to recognize that the concept of checking for threads from another processor's run queue also mean a run queue corresponding to a different physical processor as well. As a result, if there is any thread available (waiting) from another run queue, it will be acquired and processed.

16. **Claims 14 – 17** are rejected on the same ground as stated above.

17. Claims 7, 8 and 18 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art, as applied to claims 1, 12 and 23 above, and in view of Koning (US Pat. Application Publication 2002/0133530).

18. Regarding **claims 7 and 8**, applicants' admitted prior art discloses that one of the logical processors consumes resources of the physical processor (specification page 2, lines 6 – 8: when a thread is dispatched to a logical processor, the thread runs as if it is the only thread running on the physical processor). Applicants' admitted prior art did not clearly specify that the other logical processor, which relinquished resource, is having a lower priority. Nevertheless, Koning discloses that when a higher priority task that is ready to run, it preempts a currently running lower priority task (page 7, paragraph 0087). Thus, when the currently running task gives up its resource to a higher priority task, the current task is lowering its priority. It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to incorporate this concept to the applicants' admitted prior art to allow a higher priority task to preempt the lower priority task until its priority is lower (Koning: page 1, paragraph 0004).

19. **Claims 18 – 19** are rejected on the same ground as stated above.

20. Claims 9 - 11 and 20 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Koning (US Pat. Application Publication 2002/0133530), as applied to claims 1, 8, 12 and 19 above, and further in view of Welland et al. (US 5,247,677, hereinafter Welland).

21. Regarding **claims 9 - 11**, applicants' admitted prior art and Koning did not disclose the additional limitation as claimed. Nevertheless, Welland discloses the concept of lowering the priority of the logical processor for a predetermined time period and dispatching a job to the logical processor in response to raising the priority after the predetermined period of time (col. 4, line 62 – col. 5, line 17: task 24c current priority is raised from 12 to 15 making task 24c the highest priority which is to be scheduled for execution and at the end of one time slice, the current priority of task 24c would be decremented). It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to incorporate this concept to the combination of applicants' admitted prior at and Koning to take an advantage of new priority based scheduling process that does not allow lockout to occur so that all tasks will get to run, even the low priority tasks (Welland: col. 1, lines 41 – 51).

22. **Claims 20 – 22** are rejected on the same ground as stated above.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kimmel (US 6,105,053) disclosed the concept of boosting the thread priority.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 703-305-7864. The examiner can normally be reached on Monday - Thursday, 7:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 703-305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lilian Vo
Examiner
Art Unit 2127

lv
July 23, 2004

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
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